



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,302	08/23/2006	Paul Anthony Collins	HYN-1	7163
7590	05/09/2008		EXAMINER	
Law Office of Ira S Dorman Suite 200 330 Roberts Street East Hartford, CT 06108			MCMAHON, MARGUERITE J	
			ART UNIT	PAPER NUMBER
			3747	
			MAIL DATE	DELIVERY MODE
			05/09/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/590,302	COLLINS, PAUL ANTHONY	
	<b>Examiner</b>	<b>Art Unit</b>	
	Marguerite J. McMahon	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>8/23/06</u> .	6) <input type="checkbox"/> Other: ____ .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (JP401232156A) in view of Nakada (3,973,543) and Suzuki et al (4,347,825). Takahashi shows an apparatus for conditioning air and fuel supplied to an engine comprising means 5 for electrostatically charging air supplied to an engine at a negative polarity, the means extending into a first duct through which, in use, air flows to the engine, means 1 for electrostatically charging fuel supplied to an engine at a positive polarity, the means surrounding a second duct through which, in use, fuel flows to the combustor.

Takahashi shows everything except the means for charging fuel extending into a second duct, means for preheating the fuel upstream of the charging means, and an earthed electrode within a duct selected from the first duct and the second duct.

It would have been an obvious matter of design choice to utilize means that extend into the duct versus means that surround the duct, since both means function to charge the fuel and the devices function in the same manner.

Nakada teaches that it is old in the art to employ heating means 4 comprising a fluid heated by the engine (see claims 8) for preheating the fuel. It would have been

obvious to one having ordinary skill in the art to modify Takahashi by employing heating means to preheat the fuel, since this improves combustion process. In addition, it would have been an obvious matter of design choice to locate the heating means upstream of the charging means, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70. Also, it would have been an obvious matter of design choice to utilize electrical heating means in lieu of or in addition to the fluid fuel heating means, since the two are art recognized alternatives, known for the same purpose, and to employ control means to operate the electrical heating means, since this is conventional.

Suzuki et al teach that it is old in the art to utilize an earthed electrode 2 in the fuel duct. It would have been obvious to one having ordinary skill in the art to modify Takahashi by employing an additional earthed electrode in order to prevent fuel ions from attaching onto the surrounding wall.

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (JP401232156A) in view of Nakada (3,973,543) and Suzuki et al (4,347,825) as applied to claims 1 and 2 above, and further in view of Nagaishi et al (4,185,604). Takahashi in view of Nakada and Suzuki et al show everything except the electrode comprising one or more pointed electrodes extending into the duct, the earthed electrode located upstream of the other (pointed) electrode. Nagaishi et al (4,185,604) teaches that it is old in the art to employ one or more pointed electrodes 30 extending into the duct. It would have been obvious to one having ordinary skill in the art to modify Takahsi in view of Nakada and Suzuki et al by employing one or more pointed

electrodes extending into the duct, as this is an alternative method of charging the air. In addition, it would have been an obvious matter of design choice to locate the earthed electrode upstream of the other electrode, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marguerite J. McMahon whose telephone number is 571-272-4848. The examiner can normally be reached on Monday-Wednesday and Friday, 10am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Cronin can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marguerite McMahon  
Primary Examiner  
Art Unit 3747

/Marguerite McMahon/  
Primary Examiner, Art Unit 3747